MAP80 Series

AC-DC Power Supplies

Bel Power Solutions MAP80 Series provides reliable, tightly regulated DC power for industrial systems which require high peak current capabilities. MAP80 series complies with EMC product standard EN 61204-3. All RoHS compliant units bear the CE Mark.

The MAP80 utilizes a variable frequency design with a thermally efficient U-channel chassis. Design innovations include metric and SAE mounting inserts on each mounting surface to provide integration flexibility. Dual-mode connectors provide traditional terminal block connections or popular single-row Molex connector mating.

Single-output models feature wide-range output adjustability to meet a wide variety of standard and user-specific output voltage requirements.



RoHS Compliant

Key Features & Benefits

- RoHS Compliant
- Wide Range Input for 110/230 VAC Applications
- CE marked to Low Voltage Directive
- TTL Compatible Power Fail Signal
- Greater than 175,000 Hours MTBF
- Metric and SAE Mounting Inserts
- Safety approved to IEC/EN 62368-1
- Meets EMC standards: EN 61204-3
  EN 55032
  EN 61000-3-2
  EN 61000-3-3

Please read our datasheet & drawing disclaimer here.

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1. SINGLE-OUTPUT MODEL SELECTION

MODEL[7]	OUTPUT VOLTAGE	ADJUSTMENT RANGE	MAX OUTPUT CURRENT	PEAK OUTPUT CURRENT[1]	LINE REGULATION	LOAD REGULATION	RIPPLE & NOISE[2]	INITIAL SETTING ACCURACY
MAP80-1012G[6]	12V/15V	11.5V to 15.5V	7.5/6.0A[3]	9.2/7.3A[3]	0.2%	±1%	1%	11.76V to 12.15V
MAP80-1024G[6]	24V/28V	23.0V to 29.0V	3.8/3.2A[3]	4.6/3.9A[3]	0.1%	0.5%	0.5%	23.8V to 24.2V

2. MULTIPLE-OUTPUT MODEL SELECTION – 80 W CONTINUOUS OUTPUT POWER

MODEL[7]	OUTPUT VOLTAGE	ADJUSTMENT RANGE	OUTPUT CURRENT	PEAK OUTPUT CURRENT[4]	LINE REGULATION	LOAD REGULATION	RIPPLE & NOISE[2]	INITIAL SETTING ACCURACY
MAP80-4000G[5]	+5V	4.8V to 5.5V	14A	16A	0.2%	1%	1%	5.1V to 5.2V
	+12V	11.52V to 12.48V	4A	7A	0.2%	1%	1%	11.9V to 12.1V
	-5V	Fixed	1A	1A	0.5%	2%	1%	-4.8V to -5.4V
	-12V	Fixed	1A	1A	0.5%	2%	1%	-11.5V to -12.5V
MAP80-4001G[5]	+5V	4.8V to 5.5V	14A	16A	0.2%	1%	1%	5.1V to 5.2V
	+24V	23.04V to 24.96V	2A	3.5A	0.2%	1%	1%	24.0V to 24.1V
	-12V	Fixed	1A	1A	0.5%	2%	1%	-11.5V to -12.5V
	+12V	Fixed	1A	1A	0.5%	2%	1%	11.5V to 12.5V
MAP80-4002G[5]	+5V	4.7V to 5.5V	14A	16A	0.2%	1%	1%	5.1V to 5.2V
	+12V	11.52V to 12.48V	4A	7A	0.2%	1%	1%	12.0V to 12.1V
	-12V	Fixed	1A	1A	0.5%	2%	1%	-11.6V to -12.4V
	+12V	Fixed	1A	1A	0.5%	2%	1%	11.6V to 12.4V
MAP80-4003G[5]	+5V	4.8V to 5.5V	14A	16A	0.2%	1%	1%	5.1V to 5.2V
	+15V	14.4V to 15.6V	3.5A	6A	0.2%	1%	1%	14.6V to 15.1V
	-5V	Fixed	1A	1A	0.5%	2%	1%	-4.8V to -5.4V
	-15V	Fixed	1A	1A	0.5%	2%	1%	-14.4V to -15.5V
MAP80-4004G[5]	+5V	4.8V to 5.5V	14A	16A	0.2%	1%	1%	5.1V to 5.2V
	+24V	23.04V to 24.96V	2A	3.5A	0.2%	1%	1%	24.0V to 24.1V
	-15V	Fixed	1A	1A	0.5%	2%	1%	-14.4V to -15.5V
	+15V	Fixed	1A	1A	0.5%	2%	1%	14.4V to 15.5V
MAP80-4010G[5]	+5V	4.8V to 5.5V	14A	16A	0.2%	1%	1%	5.1V to 5.2V
	+12V	11.52V to 12.48V	4A	7A	0.2%	1%	1%	12.0V to 12.1V
	-5V	Fixed	1A	1A	0.5%	2%	1%	-4.8V to -5.4V
	-12V	Fixed	3A	3A	0.5%	2%	1%	-11.5V to -12.5V

[1] Peak load for 60 seconds or less are acceptable, 10% duty cycle, maximum.
[2] Maximum peak to peak noise expressed as a percentage of output voltage, 20 MHz bandwidth.
[3] MAP80-1012 output currents are expressed as 12V/15V operation. MAP80-1024 output currents are expressed as 24V/28V operation.
[4] Peak loads up to 90 Watts for 60 seconds or less are acceptable, (10% duty cycle max.). Peak power must not exceed 90 Watts.
[5] Output rated 65 W max for 50°C ambient, convection cooled.
[6] Output rated 75 W max for 50°C ambient, convection cooled.
[7] Models without suffix G are not RoHS-compliant (Leaded solder used) and are not recommended for new designs or already EOL

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3. INPUT SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
Input Voltage - AC	Continuous input range	90 175		135 264	VAC
Input Frequency	AC input	47		63	Hz
Brown Out Protection	Lowest AC input voltage that regulation is maintained with full rated loads.	90			VAC
Hold-up Time	Nominal AC input voltage (115VAC), full rated load.	20			ms
Input Current	90 VAC (80 W load) 110VAC (80W load)			2.5 1.8	A_{RMS}
Input Protection	Non-user serviceable internally located AC input line fuse.				
Inrush Surge Current	Internally limited by thermistor, Vin = 264 VAC (one cycle), 25° C			45	A_{PK}
Operating Frequency	Switching frequency of power supply (varies with load)	22		120	kHz

4. OUTPUT SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
Efficiency	Full load @ 115 VAC. Varies with distribution of loads among outputs.		73% typical		
Minimum Loads	MAP80-1012 MAP80-1024 All multiple output models, main channel only	0.42 0.21 1.50			A
Ripple and Noise	Full load, 20 MHz bandwidth.		See Model Selection Chart		
Output Power	Continuous output power, all multiple output models. Peak output power (60 s maximum, 10% duty cycle), all multiple output models.			80 90	W
Overshoot / Undershoot	Output voltage overshoot/undershoot at turn-on, V1, V2.			1	%
Regulation	Varies by output. Total regulation includes: line changes from 90-132 VAC or 175-264, changes in load starting at 20% load and changing to 100% load.		See Model Selection Chart		
Transient Response	Recovery time, to within 1% of initial set point due to a 50-100% load change, 4% max. deviation. (Main output of multiple output units).			500	µs
Turn-on Delay	Time required for initial output voltage stabilization.	1		5	s
Turn-on Rise Time	Time required for output voltage to rise from 10% to 90%.			20	ms

5. INTERFACE SIGNALS & INTERNAL PROTECTION

PARAMETER	CONDITIONS/DESCRIPTION	MIN	NOM	MAX	UNITS
Overvoltage Protection	Provided on the main output of multiple output units. MAP80-1012 MAP80-1024	5.5 17.5 32		6.8 23 37	V
Overload Protection	Fully protected against output overload and short circuit. Automatic recovery upon removal of overload condition.				
Power Fail Warning [8]	Logic LO (denotes power fail detected).			0.7	V
	Logic HI with internal pull-up to output.		5.1		kΩ
	Power Fail trip point, maximum load, decreasing line.	86		94	VAC
	Time before regulation dropout, at full load, due to loss of input power.	4			ms

[8] Power Fail Warning is not available for MAP80-1024. The MAP80-1012 is an open collector output, capable of sinking 35 mA, maximum

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6. SAFETY SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNITS
Agency Approvals	Approved to the latest edition of the following standards: UL/CSA 60950-1 2nd, IEC 62368-1 and EN 62368-1				
Dielectric Withstand Voltage	Input to Chassis Input to Output (tested by manufacturer only)	2121 4242			VDC
Insulation Resistance	Input to output	7			MΩ
Touch Current	EN 62368-1, 264 VAC			800	µA

7. ENVIRONMENTAL SPECIFICATIONS

PARAMETER	CONDITIONS / DESCRIPTION		MIN	NOM	MAX	UNITS
Altitude	Operating Non-operating				10k 40k	ASL Feet
Operating Temperature[9]	Derate linearly above 50°C by 2.5% per °C to a maximum temperature of 70°C	At 100% load: At 50% load:	0 0		50 70	°C
Storage Temperature			-40		85	°C
Temperature Coefficient	0°C to 70°C (after 15-minute warm-up)			±0.02	±0.03	%/°C
Relative Humidity	Non-condensing		5		95	%RH
Shock	Operating, peak acceleration				20	G
Vibration	Random vibration, 10 Hz to 2 kHz, 3 axis				6	G_{RMS}

[9] The use of an external cooling fan (100LFM (linear feet per minute), minimum) shall be determined at end use if the 25°C ambient is exceeded.

8. EMC SPECIFICATIONS

MAP80 complies with EMC product standard EN 61204-3.

Conducted emissions EN 55032 Class B.
Radiated emissions EN 55032 Class B.

9. MECHANICAL SPECIFICATIONS / OPTIONS

PARAMETER	CONDITIONS / DESCRIPTION
Dimensions	182.9 x 106.7 x 45.7 mm (7.2 x 4.2 x 1.8 in)
Weight	0.82 kg (1.8 lb)
Tolerances	.XX = ± 0.03 in (± 0.76 mm); .XXX = ± 0.010 in (± 0.25 mm)
Cover (Option)	Add 'C' suffix to model number or order part number 412-59585-G separately. For convection cooled applications, derate output power to 65 watts on all multiple output models and MAP80-1005. Derate MAP80-1012 and MAP80-1024 to 75 watts. Dimensions: 182.9 x 106.7 x 52.0 mm (7.20 x 4.20 x 2.05 in)

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10. CONNECTIONS

CONNECTOR	CONDITIONS / DESCRIPTION
Input & Output Connectors	6-32 screw wire clamps on 0.312" (7.9 mm) centers, 0.045" (1.1 mm) square pins on 0.156" (3.9 mm) centers, mates with Molex series 2139, 6442, or 41695
Power Fail Connections	J1: 0.035" (0.9 mm) square pins on 0.100" (2.5 mm) centers, mates with Molex series 2695/6471
Chassis	0.090" (2.3 mm) aluminum alloy, with clear finish

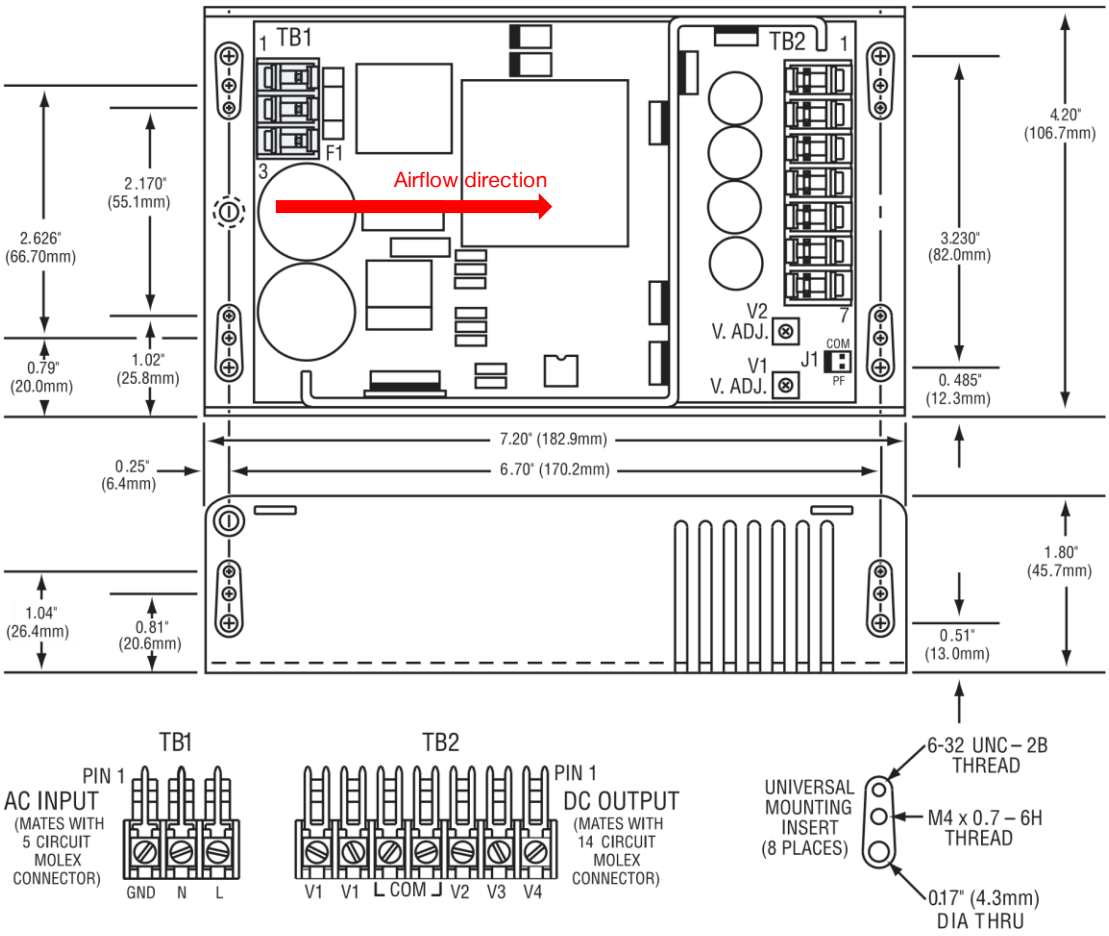


Figure 1. Mechanical Drawing

For more information on these products consult: tech.support@psbel.com

NUCLEAR AND MEDICAL APPLICATIONS - Products are not designed or intended for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems.
TECHNICAL REVISIONS - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.

Asia-Pacific +86 755 298 85888
Europe, Middle East +353 61 49 8941
North America +1 866 513 2839

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